

## REMARKS

The Office Action has been carefully considered. In the Office Action, the term “ballistic” was objected to as being misleading. Claims 1, 2, 9-13, and 18-22 were rejected under 35 U.S.C. § 102(b) as being anticipated by Bird et al, U.S. Patent No. 5,959,617 (hereinafter “Bird”). Claims 3-8 and 14-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bird in view of Stork et al, U.S. Patent No. 6,181,329 (hereinafter “Stork”).

By present amendment, claims 1, 3, 4, 9, 12, 17, and 21 have been amended for clarification and not in view of the prior art. No claims have been cancelled or added. Claims 1-22 remain pending. Applicants submit that the claims as filed were patentable over the prior art of record, and that the amendments herein are for purposes of clarifying the claims and/or for expediting allowance of the claims and not for reasons related to patentability. Reconsideration is respectfully requested.

Turning to the claim objections, the Office Action objected to the use of the term “ballistic” in the claims. Applicants respectfully submit that this term is not repugnant to the usual meaning of the term, which generally relates to motion. Nevertheless, for reasons not related to patentability and to further clarify the claims, applicants have replaced “ballistic” with “movement” and/or “acceleration” throughout the claims, and do not consider such amendments as narrowing the scope of the claims in any way.

Reconsideration is respectfully requested.

Turning now to the 35 U.S.C. § 102(b) rejections based on Bird, in one aspect of applicants’ invention, pen movement information is converted into thickness information for digital ink data. The movement information may include acceleration information

and/or tilt information. A thickness conversion component converts the acceleration information, with or without additional information such as coordinate information, available pressure information, pen angle information, and vector information, into thickness information for digital ink.

In accordance with another aspect of the invention, the acceleration information and/or tilt information may be converted to signals such as pulses, e.g., with the width of each pulse being directly related to the acceleration of the pen movements or the tilt of the pen. The thickness conversion component may convert these pulses, with or without additional information such as coordinate information, available pressure information, pen angle information, and vector information, into thickness information for digital ink.

Note that the above description is for informational purposes only, and should not be used to interpret the claims, which are discussed below.

Claim 1, as amended, generally recites a writing instrument that generates movement information that includes acceleration information and a conversion component that utilizes the acceleration information to generate line thickness information.

In contrast to the present invention, Bird is directed towards a method for using a light pen and a light sensing device. The light pen generates light that the light sensing device senses. The light pen may have an irregular shaped light which emanates from the light pen. See, e.g., Bird, figure 7. This irregular shape may be used to determine when the pen has been intentionally rotated to simulate pressure, and is the primary (if not only) feature in Bird that might be able to be used to indicate line thickness. Significantly, Bird discloses and suggests nothing about using acceleration information to generate line thickness as taught by applicants.

The Office Action cited column 8, lines 3-8 to allege that Bird discloses the elements of claim 1. Applicants strongly disagree. The cited text is completely silent as to “generating movement information including acceleration information,” as claimed, and is thus likewise silent as to utilizing such acceleration information to generate line thickness information. In fact, Bird in its entirety fails to disclose or suggest anything remotely similar to the recited element in claim 1 of “generating movement information including acceleration information” and/or utilizing the acceleration information to generate line thickness information. Applicants were unable to find the term “acceleration” or its variants (e.g., accelerate) in Bird, or anything even resembling such a concept.

Moreover, claim 1 recites that it is the writing instrument that *generates* the movement information. The only thing the light pen in Bird generates is light, and light, without something more, is not “movement information.” If movement information is generated in Bird, it would have to be generated by the sensors, along with something that interprets those sensors into movement, but whatever it is, it is not anything in the writing instrument. In fact, the present invention is a significant improvement over requiring light sensors, as taught by Bird. Thus, Bird fails to disclose or suggest this additional limitation of claim 1.

By law, in order to support an anticipation rejection, the Office Action must show that each and every element of the claimed invention is disclosed in a single reference, and that each element is arranged as in the claim. Bird is lacking at least three recited elements of claim 1, e.g., a writing instrument that generates movement information, acceleration information, and a conversion component that utilizes the acceleration information to generate line thickness information. For at least these reasons, applicants submit that claim

1 and its dependent claims are clearly patentable over Bird. Reconsideration and withdrawal of the rejections based on Bird is respectfully requested.

Regarding the rejections of the dependent claims 9-13 and 18-22, applicants submit that by their very nature, the allegations in the Office Action itself, if true, support applicants' position that the present invention is vastly different from Bird. (Note that there is nothing in Bird, let alone in FIGS. 4-8 or column 6, line 64 to column 7, line 9 that refers to samples, frequency/wavelength, distance, or plots in a map.)

Indeed, if some process generates thickness information based on "spacing of plots in a map," this clearly recognizes that that it is not the writing instrument at all that "generates movement information including acceleration information" as recited in each of these claims. Rather, there needs to be a sensing array to act as the map, which is *external* to the writing instrument. Bird, if anything, thus teaches away from the present invention. As discussed above, requiring a light sensing array is a huge drawback, which the present invention (by having the writing instrument generate the motion information) simply does not require. For at least this additional reasons, the claims are patentable over Bird.

Turning to the §103(a) rejections of claims 3-8 and 14-17 based on Bird and Stork, in order to establish *prima facie* obviousness of a claimed invention, by law, all of the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). In addition, "all words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Further, if prior art, in any material respect teaches away from the claimed invention, the art cannot be used to support an obviousness rejection. *In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed Cir. 1997).

Although Stork mentions accelerometers for calibration purposes, there is no disclosure or suggestion in Stork for using acceleration information to generate line thickness. Thus, even if permissible to combine these references, (which applicants submit it is not), Bird and Stork still fail to disclose or suggest applicants' invention, as neither teach or suggest using an accelerometer to generate acceleration information that is used to generate line thickness information.

For at least this reason, the Office Action has failed to establish a prima facie case of obviousness, and the claims of applicants' invention are patentable over the cited art, whether considered alone or in any permissible combination. Reconsideration and withdrawal of the obviousness rejections based on Bird and Stork is respectfully requested.

Moreover, with respect to the 35 U.S.C. § 103(a) rejections, the Office Action alleges that it would be obvious to combine Stork with Bird because "it would provide a means to calibrate the writing instrument for data input." To the extent this allegation is understood, applicants strongly disagree that any such combination is somehow motivated. The Office Action's reason for combining a pen that emits light with a pen that calibrates based on accelerometers is merely conclusory, and is based on nothing found in the prior art or elsewhere. The prior art is silent as to such a concept, and the Office Action does not indicate what type of calibration would take place, how it could be performed, or even how such a calibration would help a light-based pen. Such broad conclusory statements, standing alone, are not evidence of obviousness. *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

Likewise, a contention that incorporating an analog to digital converter would be obvious because "it would provide a means for converting the analog information to digital

data” is a meaningless statement, and since not supported in the prior art or otherwise, can only have been applied to applicants’ claims based on applicants’ teachings. To guard against the use of such impermissible hindsight, the law requires that obviousness needs to be determined by ascertaining whether the applicable prior art contains any suggestion or motivation for making the modifications in the design of the prior art article in order to produce the claimed design. Even the mere possibility that a prior art teaching could be modified or combined such that its use would lead to the particular limitations recited in a claim does not make the recited limitation obvious, unless the prior art suggests the desirability of such a modification. *See In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

Further, combining Stork with Bird is *taught away* from because it would add the additional weight of accelerometers to a system (a light pen and light sensing apparatus) that needs no accelerometers to detect light. Thus, the combination is impermissible. Additionally, combining Bird with Stork would destroy a feature of Stork, i.e., that of writing in the air with the pen, as once the pen stopped transmitting light to the light sensor, nothing would be tracked. See, Stork, column 3, lines 45-49. Thus, any proposed modification to Bird (e.g., to implement something along the lines of the present invention) would render Bird unsatisfactory for its intended purpose, and thus cannot be correct. *See In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

For at least these additional reasons, the claims are patentable over the prior art of record. Reconsideration and withdrawal of the claim rejections under 35 U.S.C. § 103(a) is respectfully requested.

### CONCLUSION

In view of the foregoing remarks, it is respectfully submitted that claims 1-22 are patentable over the prior art of record, and that the application is good and proper form for allowance. A favorable action on the part of the Examiner is earnestly solicited.

If in the opinion of the Examiner a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney at (425) 836-3030.

Respectfully submitted,



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CERTIFICATE OF MAILING

I hereby certify that this Amendment and Petition for Extension of Time, along with Transmittal and Change of Correspondence Address are being deposited with the United States Postal Service on the date shown below with sufficient postage as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date: April 16, 2003

  
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Albert S. Michalik

2730 Amendment



**AMENDMENTS TO CLAIMS**

Please amend the claims as follows, wherein additions are shown by underlining and deletions are shown by strikethrough:

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1. (Currently amended): A computer system, comprising,  
a writing instrument that generates ballistic movement information including  
acceleration information from a user's handwriting; and  
a conversion component that utilizes the ballistic acceleration information to  
generate line thickness information.
2. (Original): The computer system of claim 1, wherein the writing instrument  
is a pen.
3. (Currently amended): The computer system of claim 1, wherein the writing  
instrument comprises an accelerometer configured to generate the ballistic acceleration  
information.
4. (Currently amended): The computer system of claim 3, wherein the  
accelerometer generates analog ballistic movement information, and wherein the writing  
instrument comprises an analog-to-digital converter for converting the analog ballistic  
movement information to digital data.
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5. (Original): The computer system of claim 4, wherein the conversion component is located remote from the writing instrument, and further comprising transmitting the digital data to the conversion component.

6. (Original): The computer system of claim 5, wherein the digital data is transmitted via a wireless connection.

7. (Original): The computer system of claim 5, wherein the digital data is transmitted via a hardwired connection.

8. (Original): The computer system of claim 3, wherein the accelerometer is configured to generate tilt information.

9. (Currently amended): The computer system of claim 8, wherein the conversion component generates thickness information based upon spacing of plots in a map of a plot of the ballistic movement information.

10. (Original): The computer system of claim 9, wherein the thickness information is based upon the samples/unit distance of the plots.

11. (Original): The computer system of claim 10, wherein the thickness information increases a thickness component as the samples/unit distance increase.

12. (Currently amended): The computer system of claim 3, wherein the conversion component generates thickness information based upon wavelengths of the ballistic movement information.

13. (Original): The computer system of claim 12, wherein the thickness information increases a thickness component as the wavelengths increase.

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14. (Original): The computer system of claim 1, wherein the conversion component is located remote from the writing instrument, and further comprising transmitting the digital data to the conversion component.

15. (Original): The computer system of claim 14, wherein the digital data is transmitted via a wireless connection.

16. (Original): The computer system of claim 14, wherein the digital data is transmitted via a hardwired connection.

17. (Currently amended): The computer system of claim 3, wherein the ballistic movement information comprises tilt information.

18. (Original): The computer system of claim 17, wherein the conversion component generates thickness information based upon spacing of plots in a map of a plot of the tilt information.

19. (Original): The computer system of claim 18, wherein the thickness information is based upon the samples/unit distance of the plots.

20. (Original): The computer system of claim 19, wherein the thickness information increases a thickness component as the samples/unit distance increase.

21. (Currently amended): The computer system of claim 1, wherein the ballistic movement information comprises pulses having wavelengths.

22. (Original): The computer system of claim 21, wherein the thickness information increases a thickness component as the wavelengths increase.

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